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ABSTRACT

The curriculum revision project described in this paper was initiated by Gateway Technical Institute (Wisconsin) in 1976 in order to implement competency-based education (CBE) in Gateway's vocational/technical programs. The paper first defines the key elements of CBE as implemented at Gateway, which were developed on the basis of an analysis of Gateway's needs for a curriculum revision process, improved career counseling, expanded articulation, a process for awarding credit for lifelong learning, improved communication with employers through competency certificates, and expanded program flexibility. The paper then discusses the steps in the curriculum revision: (1) organization of a CBE steering committee and CBE Curriculum Center; (2) preparation of reference tools and manuals; (3) development of program goal statements; (4) identification and descriptions of the jobs for which each program provides training; (5) preparation of job mobility charts; (6) identification of competencies for each entry-level job; (7) translation of specific job tasks into Broad Competencies for instruction; and (8) sequencing of behavioral objectives into courses. The paper then identifies the components of Broad Competency learning modules around which the revised curriculum was based and the elements of the student assessment process. The paper then describes the development and format of Individualized Learning Packages and concludes with a list of revision results. (AYC)

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GATEWAY TECHNICAL INSTITUTE
COMPETENCY BASED EDUCATION:
CASE STUDY OF COLLEGE - WIDE INSTRUCTIONAL IMPROVEMENT

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Gateway Technical Institute

Competency Based Education

Gateway Technical Institute is a post-secondary Vocational-Technical School, one of 16 in Wisconsin. The Gateway District was created in 1971 when the Kenosha and Elkhorn district merged with the Racine District. Gateway now offers 56 diploma and associate degree programs in such fields as agribusiness, health, trade and industry, business and marketing, aviation, personal care and office occupations.

In 1976, Gateway began investigating competency based education as a vehicle for curriculum development. It was soon discovered from the scores of articles, reports and studies that there were as many variations to CBE as there were names:

Performance Based Education or PBF

Performance Based Instruction or PBI

Competency Based Vocational Education or CBVE

Competency Based Instruction or CBI

Competency Based Education or CBE...

the list went on.

Gateway developed its own definition of competency based education to fit its curriculum needs. That definition is: "A method of organizing the curriculum in a systematic way so that those competencies required for occupational and social success are clearly specified and attainment of the competencies is evaluated and certified." From this definition were derived the key elements of CBE at Gateway:

1. Job positions are defined and described.
2. Job tasks are inventoried in terms of knowledge and skills.
3. Tasks are translated in Broad Competencies for instruction.
4. Specific competencies (or learning outcomes) are identified.
5. Attainment of Competencies is evaluated and certified, a process that requires stating:
   - What is to be demonstrated to show mastery
   - How mastery is to be demonstrated
   - How well competency must be performed.

This definition and resulting key elements were arrived at after analyzing areas of need at Gateway.

First, a need for a process for curriculum revision. When the Gateway District was created, similar programs offered at the different campuses were maintained. However, in several cases, only the title of the programs were the same, while supposedly training for the same occupational areas, required courses, credits and skills varied. A process was needed to re-examine these programs.

Also, technological changes can greatly affect the Gateway curriculum. An orderly way to incorporate these changes was needed. What better place to develop the curriculum than to examine the jobs and the skills and knowledges they required.

Second, the need to improve student counseling for career choices. Both counselors and instructors recognized the need to better assist potential students in selecting a career. With numerous programs from which to select, a means of providing prospective students with information on career opportunities and necessary skills was essential. Hopefully, better career choices would be made when students can match their interests and abilities with the skills or competencies required by the occupations.

A third need was to expand articulation activities. As greater interest developed in competencies required in secondary and post-secondary schools, Gateway became more and more involved in articulation activities. Meetings were held between instructors and administrators from Gateway and both high school and university staff to study competencies and curriculum similarities and differences. To facilitate communication between these groups, competencies for all Gateway programs and general education were developed.

Another need was to create a process for advanced standing. More and more adults are returning to school to upgrade skills or begin new careers. These adults bring with them skills acquired through either previous classroom experience or on-the-job training. To award credit for these prior experiences has become a goal of the District. But before this could be done, our curriculum had to reflect more precisely the competencies that would be required to complete a program. Only then would previous experience be accurately matched with program competencies. Gateway is beginning to incorporate this in its educational programs.

Also needed was a method to improve communication with employers by means of a competency certificate. Each of Gateway's programs offer scores of competencies important to job performance. Accurately communicating these competencies to potential employers was judged to be one way of improving placement and promoting Gateway programs. At the same time, a more accurate report of the skills and knowledges a student attained would be more accurately transmitted to the employer.

Finally, increased attention to expanding flexible programming/scheduling was required. To better meet the needs of part-time students, some way of offering instruction in smaller units than the traditional 3 credit semester format was sought. Once the curriculum is defined in terms of competencies,

the competencies could be grouped into smaller units and offered in a more flexible manner.

Confronted with these needs and a growing interest in Competency Based Education, Gateway sought to develop an organized approach to curriculum revision.

A CBE Steering Committee consisting of instructional and administrative staff interested in CBE was organized. The committee formed a team of Faculty from a variety of programs and administrative staff from a number of divisions at Gateway. Visits were made to schools with CBE curriculum such as Hennepin Minnesota Vocational District and the Skyline Career Development Center in Dallas. Consultants were also invited to assist the Committee to define its role and develop a plan of action.

To house the activities of the Committee and curriculum materials, a CBE Curriculum Center was organized.

The Steering Committee wrote A Curriculum Design for Gateway Technical Institute. Throughout the process of developing this document, meetings were held to allow a total staff input. The result was an outline for the philosophy, rationale and model for CBE at Gateway.

To assist instructors locate other CBE programs in Wisconsin, A Directory of VTAE Districts and Selected Post-Secondary Schools Involved in CBE In Wisconsin was published.

Finally, over the course of CBE development, a step-by-step Implementation Manual was compiled, carefully specifying each step that an instructional program or general education area should follow to implement CBE.

The Implementation Manual prescribed the following curriculum development process:

1. Develop Program Philosophy and Goals

2. Identify job titles.

3. Identify occupational and/or social skills/knowledge.

4. Group skills and knowledges into broad Competencies.

5. Validate Competencies

6. Sequence Competencies into course.

7. Develop Broad Competency modules

8. Field Test Broad Competency Modules

9. Develop individualized Instructional Packages.

The development of a philosophy and goals for each instructional program and general education area was considered an essential starting point in the CBE process. This gave each area the opportunity to assess its role in fulfilling the total mission of Gateway. It also gave direction for future program development.

Identification of Job Titles required each program to review again the occupational areas for which their students were trained. For each job identified, job descriptions were developed using materials available in the Learning Resources Centers Career Education collection as well as other sources.

To graphically show students the career opportunities available to them, mobility charts were also prepared. These charts showed the entry level job for which Gateway prepares graduates, advanced level jobs that may be attained with additional training and/or experience, and jobs requiring baccalaureate or higher degrees. Jobs available for students who may not complete a full program of study were also noted as Job Outs.

The next step in CBE development required the identification of competencies for each entry level job. Numerous task inventories and competency lists were acquired from:

Local surveys conducted by Research & Planning

The U.S. Office of Education, Vocational-Technical Education Consortium of States (VTECS)

Ohio State University Center for Vocational Education

University of Wisconsin Vocational Studies Center and others

The tasks that were identified were grouped into Broad Competencies-behavioral statements describing skills, knowledges and attitudes the student must exhibit upon completion of a unit of instruction. Eight Criteria were used to develop and evaluate Broad Competencies--including the requirement that each broad competency involve 16-20 hours of student learning time. This designation of hours was necessary to ease transfer of credit hours and calculate student financial benefits.

To insure that the competencies identified by instructors were indeed those required for the job, each of Gateway's programs along with their general education component were validated. Advisory committee members along with an equal number of employers and employees representing each occupational program reviewed the competencies. The results of this validation process involving over 1,000 individuals were returned to instructors for review.

Once a curriculum committee reviewed the validation results, made appropriate changes and obtained approval by the Gateway Administrative Curriculum Committee, competencies were sequenced into courses. Development of Broad Competency Modules became the next stage in implementing CBE. Broad Competency modules outline for students what must be done in a unit of instruction, so that a competency can be attained and an assessment made. .

In addition to stating the Broad Competency, broad competency modules include:

1. An overview-to summarize the module and to indicate its importance to the student.
2. Content topics-the information to be presented in the module.

3. Learning Outcomes-which are the specific skills and/or knowledges to be exhibited by the student in the course of the module. Mastery of all learning outcomes leads to achievement of the broad competency.

4. Learning Activities and Learning Resources-used by students as they proceed through the module.

Finally, the method of Assessment-to inform students of the way they will be tested to show competency attainment. Assessment also requires instructors to state a Criteria of Acceptable Performance - or how well the students must perform and Conditions/Limitations-the situations under which the students will be assessed-such as time and materials that will be given to the student in the Assessment process.

Broad Competency modules then become the framework for instruction at Gateway, the foundation upon which Competency Based Education is built.

To test the effectiveness of the Broad Competency module in the classroom, instructors assisted by Research & Planning field tested selected modules. Results of field testing were used to determine where revisions were needed.

Several programs are developing CBE beyond the Broad Competency Module by implementing Individualized Learning Packages. The ILP's require the same type of information as the Broad Competency module. However, unlike the Broad Competency Module, ILP's are designed to be self-contained instructional packages requiring a minimal amount of instructor support.

This outline shows the format for an Individualized Learning Package.

- The Broad Competency
- The Overview

- The Specific Competency or competencies covered in this ILP. It is the specific competencies which include learning outcomes, condition/limitations and criteria of acceptable performance.
- A Pre-Test may be included to assess prior learning or allow a student to Test-Out of the ILP.
- The Learning Resources and Learning Activities are also included.
- A final post-test is given to assess attainment of the competency.

Instructions upon completion of the module provide directions to students on how to proceed based upon results of the post-test.

Gateway has progressed far in its implementation of CBE. What has always been good in Gateway's instructional programs have been maintained-emphasis on vocational-technical education, concern with meeting educational needs of student, providing appropriate facilities and materials, a well trained instructional and administrative and support staff.

What Implementation of CBE has produced is a greater effort to evaluate and more clearly specify what is good about its instructional programs.

The implementation process has sometimes been painful-but it has produced results:

1. Instructional programs and courses have been updated to meet today's occupational demands.
2. Entire programs have been restructured.
3. Duplication of content has been reduced.
4. More flexibility in offerings has been formulated.
5. New recruitment material highlighting career preparation have been developed.
6. Greater awareness to needs and methods for career guidance has been emphasized.

7. Changes in sequencing of content, competencies and courses.

8. Greater appreciation of the importance of each instructor's role in providing learning experiences that lead directly to competency attainment.

9. Greater opportunity for both instructors and administrative staff to evaluate the quality and direction of Gateway's instructional programs.

These results can be seen in part in the many CBE materials already produced-competency lists, mobility charts, descriptive list of occupations, broad competency modules and individualized learning packages.

Gateway would be pleased to share these materials with you. Just contact.....

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